

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

- 1 1. (original) A method of backing up and restoring data in a computer system, the method comprising:
 - 3 defining a logical backup object;
 - 4 specifying one or more collapsed extents; and
 - 5 recording details of the collapsed extents.
- 1 2. (original) The method of claim 1 further comprising:
 - 2 starting data movement between a host and the backup and restore system; and
 - 3 monitoring data movement.
- 1 3. (original) The method of claim 2 further comprising:
 - 2 receiving a completed signal; and
 - 3 in response to the completed signal, halting the monitoring of the data movement.
- 1 4. (original) The method of claim 2 further comprising repeatedly defining a logical backup object, specifying extents, starting data movement, recording details of the specified extents and monitoring data movement from a first storage unit to a second storage unit until all data is transferred to the second storage unit.
- 1 5. (original) The method of claim 2 further comprising restoring data by:
 - 2 creating empty objects to restore into;
 - 3 discovering the extents of the empty objects;
 - 4 reading the extents of the backup objects; and
 - 5 specifying a mapping from backup extents to restore extents wherein at least one of the extents corresponds to a collapsed extent.

1 6. (original) A method of backing up data used in a computer system having a client, a primary
2 storage system and a backup storage system, the method comprising:

3 discovering one or more actual extents on the primary storage system;
4 collapsing the extents; and
5 specifying the collapsed extents to the backup storage system.

1 7. (original) The method of claim 6 wherein collapsing the extents comprises:

2 identifying a pattern in the actual extents discovered on the primary storage system; and
3 generating a representation of files specified by the actual extents which is more compact
4 than the representation provided by the actual extents and defining the representation as a
5 collapsed extent.

1 8. (original) A method of restoring data from a backup and restore system to a host, the method
2 comprising:

3 creating empty objects on host to restore into;
4 discovering the extents of the empty objects;
5 reading the extents of the backup objects; and
6 specifying a mapping from backup extents to restore extents wherein at least one of the
7 extents corresponds to a collapsed extent.

1 9. (original) The method of Claim 8 wherein specifying a mapping comprises specifying pairs
2 of extents which identify the backup extents and the restore extents.

1 10. (cancelled).

1 11. (original) The method of Claim 8 further comprising:

2 monitoring data movement.
3 receiving a complete signal; and
4 in response to the completed signal halting the monitoring of the data movement.

1 12. (original) A backup and restore system for backing up and restoring files to and from a
2 primary storage system coupled to a client, the backup and restore system comprising:

3 a processor for defining a logical backup object;
4 a collapsed extent processor for specifying collapsed extents;
5 means for starting data movement; and
6 an extent recording processor for recording details of collapsed extents.

1 13. (previously presented) The system of claim 12 further comprising means for logically
2 restoring a logical element from a segment of storage on the primary storage system.

1 14. (original) The system of claim 12 further comprising a processor for specifying a mapping
2 from backup extents to restore extents wherein at least one of the extents corresponds to a
3 collapsed extent.

1 15. (original) The system of claim 13, wherein said means for logically restoring comprises:
2 means for creating empty objects to restore into;
3 means for discovering the extents of the empty objects;
4 means for reading the extents of the backup objects; and
5 means for specifying a mapping from backup extents to restore extents wherein at least
6 one of the extents corresponds to a collapsed extent.

1 16. (original) The system of claim 13, wherein the means for logically restoring comprises
2 means for specifying pairs of extents which identify the backup extents and the restore extents

1 17. (previously presented) A method of restoring data from a backup and restore system to a
2 host, the method comprising:
3 creating empty objects on host to restore into;
4 discovering the extents of the empty objects;
5 reading the extents of the backup objects; and
6 specifying a mapping from backup extents to restore extents wherein at least one of the
7 extents corresponds to a collapsed extent and wherein specifying a mapping comprises:

8 identifying whether both back up and restore extents are striped;
9 in response to both the back up and restore extents being striped, identifying
10 whether both back up and restore extents have the same column width and column count;
11 in response to both the back up and restore extents being striped, identifying
12 whether both back up and restore extents start at the beginning of a stripe element;
13 computing a number of repetitions; and
14 generating a single restore extent for the number of repetitions.